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ABSTRACT

A study examined patterns of the use of two computer-assisted career guidance (CACG) systems--the DISCOVER System and the System of Interactive Guidance and Information (SIGI)--at educational institutions throughout the country. A 30-item questionnaire was mailed to each of the 677 institutions across the United States that were identified as using either CACG system. Of those institutions contacted, 438 completed questionnaires, yielding a 64.7 percent response rate. Most of those institutions using a CACG system did so on microcomputers. The systems were used more widely in smaller than in larger schools. Some postsecondary institutions were using the systems as recruitment tools and, although neither system was designed for use by adults, adult students were said to be requesting and receiving services involving CACG. In many cases, CACG systems were being used as an integral part of traditional career guidance and educational services. In many cases, however, institutions have not engaged in the planning, staff training, and evaluation efforts necessary to deliver services that allow clients to obtain the full measure of benefits possible with this technology. To improve the use of CACG systems, professional associations, system developers, and user groups must establish standards for the provision of services. (The survey instrument is appended.) (MN)

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A NATIONAL SURVEY OF THE USE OF DISCOVER AND SIGI:

TECHNICAL REPORT NO. 1

by

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PREFACE

This report describes a national survey of 677 institutions using DISCOVER and SIGI as of June 1984. The goal was to produce a generic description of the present use of these systems. A return rate of 64.7% (N=438) was obtained to the 30 item questionnaire. Survey results are presented and discussed on the following topics: (1) system(s) currently in use, (2) institutional characteristics, (3) system configuration, (4) integration with other services, (5) counselor and staff intervention, (6) usage statistics for all users, (7) system management, (8) system implementation, and (9) potential needs. The report includes 15 tables and four appendices. The authors acknowledge the support and assistance provided by personnel at the American College Testing Program and the Education Testing Service in the completion of this survey.

TABLE OF CONTENTS

PREFACE ---------- i

TABLE OF CONTENTS ---------- ii

LIST OF TABLES ---------- iii

LIST OF APPENDICES ---------- iv

Background ---------- 1

Purpose of the Study ---------- 2

Methodology ---------- 3

Sample ---------- 3

Procedures ---------- 3

Instrumentation ---------- 4

Data Analysis ---------- 4

Results ---------- 4

(1) Systems Currently in Use ---------- 4
(2) Institutional Characteristics ---------- 4
(3) System Configuration ---------- 5
(4) Integration with Other Services ---------- 5
(5) Counselor and Staff Intervention ---------- 5
(6) Usage Statistics for All Users ---------- 5
(7) System Management ---------- 6
(8) System Implementation ---------- 6
(9) Potential Needs ---------- 6

Discussion ---------- 6

Conclusion ---------- 10

REFERENCES ---------- 12

TABLES ---------- 14

APPENDICES ---------- 30

LIST OF TABLES

Table		Page
1.	Institutional Affiliations	15
2.	Number of Students Enrolled	16
3.	Terminal or Microcomputer Location	17
4.	Referral Sources	18
5.	Informational Resources Available	19
6.	Computer Applications Available	20
7.	Method of Counselor Intervention Used	21
8.	Type of Staff Providing Assistance	22
9.	Point at which Counselor Intervention is Provided	23
10.	Availability of Staff Members	24
11.	Availability of Support Materials	25
12.	Evaluation Strategies	26
13.	System Implementation	27
14.	Source of Training During System Implementation	28
15.	Potential Needs	29

LIST OF APPENDICES

Appendix	Page
A. ACT and ETS Form Letters	31
B. Investigator Letter	34
C. Order Form	37
D. Survey Instrument	39

A NATIONAL SURVEY OF THE USE OF DISCOVER AND SIGI:

TECHNICAL REPORT. 1

Background

The use of computer assisted career guidance (CACG) and information systems in secondary and postsecondary schools, governmental agencies, and private organizations has increased dramatically over the past fifteen years. Increases have occurred in both the number of different systems available and the number of microcomputers/terminals available to individual users. The Association of Computer-Based Systems for Career Information (1983a) estimates that 4 1/2 million students, teachers, counselors, and clients used a state or local computer assisted career information system at ten thousand schools and social agencies in 1983. In a national study of the use of career information in secondary schools, Chapman and Katz (1981) found that counselors in schools with CACG systems preferred this resource for obtaining information over other print, experiential, or audio-visual resources.

Reviews of CACG research by Cairo (1983); Clyde (1979); Parish, Rosenberg, and Wilkinson (1979); and Sampson (1984) have concluded that these systems facilitate both the acquisition of career information and the process of career decision-making. In their research on the use of career information resources in secondary schools, Chapman and Katz (1981) found that students generally did not make adequate use of the resources that were available. Even when CACG systems were available at a school, only about one-half of the students used this resource. In a second study evaluating the impact of all types of career information resources on students, Chapman and Katz (1982) found that users were not successfully integrating this data into the process of decision-making. It was suggested that this lack of impact was influenced by students superficial and inefficient use of information resources, and the lack of an adequate context to place and process the extensive amount of data that was available.

There is an apparent contradiction in the literature. Data available on individual CACG systems indicate positive outcomes, while aggregate data on the use of varied types of career information resources at a diverse sample of sites indicate less favorable outcomes. One possible explanation is that while CACG systems do have the potential to deliver very powerful career guidance interventions, they are only part of the total equation for providing quality services. The context in which a CACG system is used (e.g., total design of services, staffing, user characteristics, and support resources) is as important as the quality of CACG system design. A well designed CACG system that is inappropriately implemented is just as inadequate as a poorly designed CACG system that is effectively implemented.

Many of the studies presented in the literature were conducted by system developers, doctoral candidates completing dissertations, or staff members evaluating a newly implemented system. It can be hypothesized that in these cases there tended to be careful attention to the context

in which CACG systems were used, thus contributing to effective outcomes. As a general rule, however, many institutions have not paid adequate attention to the context of CACG system use, thus contributing to the unfavorable outcomes observed by Chapman and Katz (1981, 1982). A wide variety of potential problems stemming from inadequate implementation efforts were noted by Sampson (1984). In order to capitalize on the potential effectiveness of CACG systems, it seems clear that careful attention needs to be paid to the design and implementation of total career development services, of which a computer system is only one component. As a result of having an adequate context to place and process information, the user will likely make more effective use of a CACG system.

In order to maximize the impact of CACG systems it is necessary to first understand how they are being used in the United States. Little data is available on this topic. An effort to obtain national data, similar to work of Ballantine (1980) in Britain, is clearly needed. Research and evaluation studies involving specific CACG systems generally have provided very limited descriptions of the context in which the systems were used. Shealy (1982) reviewed evaluations of ten state-based career information delivery systems. Data were generally limited to the number of users, the types of users, and some descriptions of how the systems were used. Since each state used a somewhat different evaluation strategy it is not possible to integrate the data into a comprehensive aggregate description of how CACG systems are used on a national basis. In an attempt to address this issue the Association of Computer-Based Systems of Career Information (1983b) conducted a national survey of 45 state-based career information delivery systems. Thirty-eight systems provided data on: length of operation, type of delivery system, management configuration of state staff, organizations represented on governing or advisory boards, delivery system medium, special features, developmental projects, number of sites and users by delivery system, percentage of potential sites served, and system finances. While this study provided information on state systems, the data were limited to the perspective of the total use of a system within a given state. Specific information on how the systems are used by individual institutions and agencies was not obtained.

Also, data were not presented on the use of guidance type CACG systems. Katz and Shatkin (1980), Jacobson and Grabowski (1982), McKinlay (1983), Myers (1983), and Sampson (1984) have categorized CACG systems as emphasizing information or guidance functions, with information systems placing an emphasis on the provision of local and state-wide career and educational information, and guidance systems placing an emphasis on national career and educational information as well as emphasis on facilitating an understanding of the career decision-making process.

Purpose of the Study

The purpose of the present study was to provide aggregate descriptive data on the use of two guidance type CACG systems at individual institutions on a national basis. These data can be used to

generate hypotheses regarding the factors associated with effective and ineffective use of CACG systems. The desired outcome is to suggest ways in which computer assisted career guidance services can be designed and implemented so that the user can make full use of resources available, as well as have an adequate context in which to place and process information on self, potential options, and the process of career decision-making.

The two guidance type CACG systems currently in widespread use in the United States are DISCOVER and the System of Interactive Guidance and Information (SIGI), supported the American College Testing Program (ACT) and the Educational Testing Service (ETS), respectively. These two systems were selected for this study because of their general availability and the lack of national data on their use. Specific research questions were as follows:

(1) What type of computer hardware is most prevalent at DISCOVER and/or SIGI sites?
(2) What are the characteristics of institutions that use DISCOVER and/or SIGI?
(3) How are DISCOVER and/or SIGI configured in terms of system availability?
(4) How are DISCOVER and/or SIGI integrated with other career guidance services?
(5) What is the nature of counselor and staff intervention associated with DISCOVER and/or SIGI?
(6) How many persons use DISCOVER and/or SIGI?
(7) How is the use of DISCOVER and/or SIGI managed?
(8) What was the implementation process associated with DISCOVER and/or SIGI?
(9) What might be done to improve the quality of services provided by institutions that use DISCOVER and/or SIGI?

Methodology

Sample

The respondents in this study were institutional contact persons with some degree of responsibility for the use of the DISCOVER and/or SIGI systems. The 677 institutions that received questionnaires included all DISCOVER and SIGI sites available in the United States in January 1984.

Procedures

The following items were mailed to each contact person: (1) a form letter from either an ACT or an ETS representative requesting individuals to complete the questionnaire (see Appendix A); (2) a form letter from the investigators explaining the purpose and procedures associated with the study (see Appendix B); (3) an order form that the respondents could use to request free bibliographies developed by the investigators on DISCOVER, SIGI, and general issues related to the use of CACG systems (see Appendix C); (4) the "Survey of Institutions Using DISCOVER and SIGI" (see Appendix D); and (5) a postage paid return envelope. In order to maximize the rate of return and protect the confidentiality of

the respondents, no identifying information was included on the questionnaire. Bibliography request forms were provided separate from the questionnaire to further ensure confidentiality. Data collection was completed in June 1984.

Instrumentation

A review of the literature related to CACG systems yielded a series of factors potentially related to the effectiveness of service delivery. Research questions and an initial pool of questionnaire items were developed. A 52 item questionnaire was written entitled, "Survey of Institutions Using DISCOVER and SIGI." System developers at ACT and ETS reviewed and commented on the content validity of the instrument. External reviewers with additional expertise in measurement and evaluation commented on the clarity of instructions, item presentation, and response formats. The original questionnaire was then shortened to a total of 30 items, with further revisions completed on specific questions.

Data Analyses

The condescriptive and frequencies subprograms of the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975) were used to determine the distributional characteristics of responses to the survey items. These subprograms provide descriptive statistics which summarize information on the distribution, variability, and central tendencies of selected variables.

Results

Of the 677 DISCOVER and SIGI sites surveyed, 438 responded, yielding a 64.7% response rate. Descriptive statistics were obtained from the 9 categories of items presented: (1) system(s) currently in use, (2) institutional characteristics, (3) system configuration, (4) integration with other services, (5) counselor and staff intervention, (6) usage statistics for all users, (7) system management, (8) system implementation, and (9) potential needs.

(1) System(s) Currently in Use

DISCOVER on a microcomputer or a minicomputer was reported to be currently in use at 240 sites. The mainframe version of DISCOVER was reported to be in operation at 13 sites. Seventy sites indicated current use of SIGI on a mainframe or a minicomputer and 143 sites reported to be using SIGI on a microcomputer. Thus a total of 253 respondent sites reported DISCOVER use and 213 reported SIGI use.

(2) Institutional Characteristics

Table 1 presents data describing the types of institutions housing either/both system(s) as specified by the respondents. The relative student body sizes of these institutions are shown in Table 2. Institutions with less than 5,000 students accounted for 58.9% of the sample. The means and standard deviations of estimates pertaining to

adult students are as follows: Percentage of adult students over the age of 25, M = 30.6%, SD = 21.1 (N=313); Percentage of the institution's DISCOVER or SIGI users who are adult students over the age of 25, M = 25.6%, SD = 25.0 (N=315).

(3) System Configuration

Overall, 70.5% of the respondents reported the availability of a single computer terminal or microcomputer for client use of DISCOVER or SIGI (M=1.96, SD=4.4). Table 3 displays commonly designated institutional locations for this hardware.

(4) Integration with Other Services

Individual counseling was most often noted as a source of referral to DISCOVER or SIGI (N=411). The representation of other potential referral sources within the institutions is shown in Table 4. When integrated with other services, the systems were most frequently reported to be used as components of academic advisement programs (N=261), followed by retention programs (N=173) and admissions recruitment programs (N=140).

Books, pamphlets, files, etc. (N=424) and tests/inventories (N=398) were most often cited as informational resources available to system users. Table 5 shows the availability of these and other informational resources at institutions participating in the survey. The availability of computer-assisted career information systems (in addition to DISCOVER or SIGI) was considerably less than the more traditional informational resource alternatives. Other computer applications (with the exception of word processing) tended to be present more frequently (see Table 6).

(5) Counselor and Staff Intervention

The data presented in Table 7 indicates that individual counseling was reported to be the most popular method used to assist clients in their interaction with DISCOVER or SIGI (N=416). While all respondents reported that counselor intervention was routinely provided to system users, the type of staff members providing the intervention tended to vary (see Table 8). Table 9 presents information on the point(s) during client use of the systems when counselor intervention was noted to be typically provided. Most respondents (90.2%) reported that a staff member is available to assist clients all or most of the time as can be seen in Table 10.

Lists of occupations (N=367) and general user guides (N=357) were found to be the types of support materials most commonly available to system users. Table 11 shows the availability of a variety of support materials among the sample.

(6) Usage Statistics for All Users

An average of 342.8 users was calculated from estimates of the total number of different persons who used DISCOVER or SIGI in the 1982-83 school year (SD=487.3, N=281). Responses ranged from 5 users at a private practice site to 6,000 users in a school district. A high degree

of variability was found to be associated with estimates of the average total time (per client) spent using the systems, M=151.7 minutes, SD=70.0 (N=272). The means and standard deviations of estimates relating to client appointments were as follows: Average time length of a client appointment (minutes), M=78.4, SD=40.9 (N=377); Average number of appointments per client, M=2.4, SD=.85 (N=380); Average amount of time that elapses between making an appointment and the beginning of system use (days), M=3.7, SD=2.9 (N=356).

(7) System Management

Reports of the number of months that the systems have been used by participating institutions (through June, 1984) ranged from 1 to 222 (M=11.3, SD=16.6, N=250) for DISCOVER, and 1 to 138 for SIGI (M=28.3, SD=23.0, N=206). The systems were reported to be available for client use an average of 5.1 days per week (SD=.47, N=429) for 8.9 hours per day (SD=4.8, N=413). The most frequently noted job title of system managers was counselor (N=73), followed by director (N=61). A wide array of job titles were listed, including librarian, principal, registrar, office manager, computer services manager, learning support coordinator, and guidance technician. Table 12 presents information on the types of strategies institutions reported to be using to evaluate the impact of system interaction on clients. Sixty-two respondents (14.2%) indicated that no evaluation data are being (or have been) collected.

(8) System Implementation

Table 13 suggests that most institutions (84.9%) used some method to plan the implementation of DISCOVER or SIGI. In-house trainers (N=236) and system developers (N=102) were most frequently noted as providers of staff training during the implementation phase (see Table 14). A sizable number of respondents (N=111, 25.3%) indicated that no staff training was available at their institution.

(9) Potential Needs

The need for specific strategies for using DISCOVER and SIGI with returning adult clients was most frequently noted (N=268). Table 15 provides information on potential system needs.

Discussion

The following discussion of survey results generally follows the order of the nine research questions presented earlier. In reviewing the types of computer hardware used for DISCOVER and SIGI, it is apparent that guidance type systems are following the general trend in computing toward the use of microcomputers for most data processing tasks. The distribution of guidance type systems is greater in postsecondary as opposed to secondary institutions. This situation has probably been influenced by more energetic marketing efforts for guidance systems in higher education. Perhaps information type systems are more prevalent in secondary schools due to the shorter average client completion time needed for this resource in comparison to guidance systems.

There appears to be a greater concentration of guidance type systems in smaller institutions. One factor contributing to this situation is that the limited career development resources available at some small institutions may influence administrators to use these systems to improve services without adding additional staff Also, smaller institutions may be somewhat less tradition bound by a long history of comprehensive career development services and thus be more willing to implement innovative computer assisted resources. Some postsecondary institutions may also use these systems as student recruitment tools.

It appears that adults are seeking and receiving these services in spite of the fact that DISCOVER and SIGI are not specifically designed to serve adult populations. As guidance systems specifically designed for adults become available it is likely that the percentage of adults served by this resource will increase.

The trend toward the availability of only a single terminal/microcomputer is likely related to the large number of small institutions responding to this study. A potential problem exists, however, when the number of available terminals/microcomputers is not sufficient to keep up with demands for appointments. A long delay in obtaining an appointment may cause some clients to not continue in their efforts to obtain services from these systems.

The location of terminals/microcomputers in counseling and career services offices indicates an attempt to link guidance type systems with traditional places for providing career development services. The advantages of this approach include the close proximity to other supporting career information resources and the availability of counselors and other staff members who are familiar with the provision of career development services.

The dominant method of gaining access to guidance type systems is through existing career guidance interventions (individual counseling, group counseling, and curricular approaches). Guidance systems are generally being used as a component of existing interventions. This approach has some important advantages. First, the integration of traditional and computer assisted interventions reduces the likelihood of persons viewing the computer as a "magical" answer to career decision-making. Second, the integration of these two types of interventions maximizes the opportunity for counselors and staff members to conduct adequate prescreening, introductory, and follow-up activities necessary to ensure appropriate client use of these resources (Sampson & Pyle, 1983).

It appears that almost all institutions provide some type of supplemental information resources for clients who use these guidance type systems. The availability of support resources is likely related to the fact that these systems are often used as a component of traditional career guidance services where information is available prior to the implementation of a CACG system. Almost half of the institutions surveyed made available six of the eight types of information resources described in the questionnaire. The availability of a broad diversity of information resources contributes to effective career guidance programs (Reardon, 1984). Those institutions with a restricted range of

information resources, such as print media and tests/inventories, are likely not providing the type of quality services necessary to meet the wide range of client needs for career and educational information. It is interesting to note that nine institutions responding to the questionnaire provided no supplemental information resources. This does not represent adequate professional practice in the provision of CACG services.

At the present time it does not appear that computer applications other than guidance type systems are being used on any consistent basis. Future reductions in the cost of computer hardware and the prevalence of quality software will undoubtedly increase the use of computer applications in the provision of career development services. Due to the inclusion of local and state data in information type CACG systems, it seems that guidance and information systems can be effectively used in tandem to meet the needs of each client more comprehensively.

In terms of integrating guidance type systems with other services, it is also interesting to note that one-third to one-half of the institutions used their guidance system as part of academic advisement, admissions-recruitment programs, or retention programs. One can conclude from these data that CACG services are supporting the overall academic missions of the institutions involved.

Individual counseling appears to be the predominant method of integrating guidance type system use within the career counseling process. The cost effectiveness of CACG services could be further enhanced by increasing the use of group and curricular interventions. While professionally trained counselors provide a great majority of counseling interventions, paraprofessionals appear to also have an important role in facilitating client use of guidance type systems. It would be helpful to know if the behavior of professionally trained counselors differs from the behavior of paraprofessionals in providing interventions. These data could be used to establish training agendas for both groups to improve services or to differentiate specific tasks for each type of service provided.

In terms of the timing of counseling interventions, by far the most common approach appears to be intervening before and after a client's use of a guidance type system, with somewhat less frequent intervention during system use. In view of the standards for counselor intervention presented by Sampson (1983) and Sampson and Pyle (1983) this represents good professional practice on the part of many institutions. The fact that 53 institutions responding to this survey did not provide any counseling intervention related to clients' use of a guidance type system, however, is alarming. At these institutions there exists the possibility that inappropriate clients may be using this resource, that clients may misunderstand the purpose and operation of the system, and that clients may not be able to successfully integrate their use of a system into the career decision-making process. While the availability of counselor intervention is no guarantee that these problems will not occur, adequate and consistent counselor interventions can reduce the likelihood that the types of problems described above will arise. Bungy

(1984), for example, found that prior vocationally relevant experiences enhance the effectiveness of user's subsequent CACG experiences.

A large majority of institutions indicated the availability of a staff member to answer client questions and deal with problems while the client uses a guidance type system. As with the preceding issue, failure to provide clients with assistance while they use a CACG system is clearly inappropriate professional practice. A considerable opportunity for confusion and system misuse can result when adequate and consistent monitoring is not provided.

In terms of support materials available to clients who use guidance type systems, general user guides and lists of occupations were the most widely used resources. Audio-visual materials and user exercises offer the opportunity for institutions to essentially customize a standard CACG system to the unique needs of local users. The potential for enhancing total effectiveness through the use of these supplemental resources does not appear to be currently realized. Another area of considerable concern involves the fact that 71 institutions responding to this questionnaire reported that no list of occupations is made available to the user, in spite of this list being provided by system developers with encouragement for making it available to clients.

It appears that clients are scheduling two or more appointments over a period of time on these systems. The finding that clients are spending on an average no more than 78 minutes for a given appointment at the microcomputer/terminal is reassuring in view of the potential for fatigue and reduced performance associated with lengthy terminal sessions. Also, the finding that clients are waiting on the average no more than 3.7 days before gaining access to a system reduces the likelihood that clients will become discouraged and drop out due to long delays. A recommended formula for planning the implementation of a guidance type system should allow for three appointments lasting 90 minutes each, multiplied by the number of anticipated users, in determining the number of microcomputers/terminals needed.

Most systems appear to be available 8 to 9 hours per day, 5 days per week. As institutions expand their services to include more adult learners, additional evening and weekend hours will need to be added to accommodate employed person's schedules.

A little over two thirds of the institutions surveyed were involved in some type of activities to evaluate the effectiveness of their CACG services. Institutions that are not involved in any type of evaluation are likely to find it difficult to be accountable for resources expended for a CACG system and to effectively plan for improved services. The most common approaches to evaluation involve counting the number of clients served and obtaining data on client satisfaction with the system. This evaluation methodology is clearly limited. Cairo (1983), Sampson (1983), and Spokane and Oliver (1983) have presented specific suggestions for improving CACG evaluations, with the most important being the use of validated instrumentation to identify actual changes in user behaviors as well as knowledge of self, options, and the decision-making process.

In terms of planning related to system implementation, less than 40% of the institutions surveyed reported use of a formal plan with identified steps and time-frames. The adequacy of the ad hoc planning approach used by almost half of the respondents is suspect. Careful planning is needed to ensure that the CACG system (1) is congruent with existing services and theoretical perspectives, (2) has adequate staff and resource support, and (3) does not foster staff resistance. The limited planning approach represented by the ad hoc method and the absence of any planning by some institutions is inadvisable. The fact that 111 institutions reportedly provide no staff training as part of the implementation process presents further concern. It also seems improbable that the staff members at the 236 institutions that used the in-house training approach were all adequately prepared to design and conduct a complete training program, in terms of the theoretical design of DISCOVER and SIGI and the numerous alternatives for service delivery. The inadequate provision of staff training experiences may well be one of the greatest weaknesses in the application of computer technology to the provision of career guidance services. Efforts such as the Counselor Training Component of Project LEARN are clearly needed to enhance the skills of practitioners currently using CACG systems.

Further verification of the problems described above relating to evaluation strategies, planning, and training was evident in that requests were made by almost half of all respondents for identification of instruments appropriate for evaluation studies, planning assistance related to strategies for working with returning adult students, and in-service training for counselors and other staff members.

Conclusion

This study provided aggregate data on the use of guidance type CACG systems at a broad diversity of institutions in the United States. At many institutions it appears that these systems have been implemented in such a manner that a variety of human and material resources are available to facilitate client use of this technology. In many cases guidance type systems are used as an integral part of traditional career guidance and educational services. By using systems in this manner it is possible for the client to make full use of resources available as well as creating a context to place and process information on self, potential options, and the process of career decision-making. It is also apparent, however, that many institutions have not engaged in the planning, staff training, and evaluation efforts necessary to deliver services that allow clients to obtain the full measure of benefits possible with this technology. The major problem does not appear to be associated with the quality of the present guidance type CACG systems, although improvements can obviously always be made. The major problem relates to inappropriate and inadequate use of the computer systems that already exist. Many systems appear to be used in an effective manner while others are not effectively used. It is clear that every professional must ensure that this technology is used to the most beneficial extent possible.

In order to further improve the use of CACG systems it will be necessary for professional associations, system developers, and user

groups to further establish standards for the provision of services. The standards developed by the Association of Computer-Based Systems of Career Information (1982) are a positive step in this direction. Graduate training programs need to improve the preparation of entry level practitioners along the lines suggested by Sampson and Loesch (in press). Improved in-service training is the responsibility of all of the groups mentioned above. Additional research is needed to explore differences in the ways in which different guidance and information type systems are used in practice. An exploration of the specific relationships between variables associated with system use and system effectiveness is also needed.

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TABLES

TABLE 1

Institutional Affiliations

Type of Institution	Distribution	
	Frequency	Percentage
High School	103	23.5
Vocational/Technical School	8	1.8
Community College	91	20.8
Four-year College	98	22.4
University	113	25.8
Other	23	5.3
Missing	2	.5

TABLE 2

Number of Students Enrolled

No. Full/part-time students	Distribution	
	Frequency	Percentage
Fewer than 1,000	111	25.3
1,000 to 4,999	147	33.6
5,000 to 9,999	59	13.5
10,000 to 14,999	44	10.0
15,000 to 19,999	19	4.3
20,000 to 24,999	15	3.4
25,000 to 29,999	11	2.5
30,000 to 34,999	6	1.4
Over 35,000	9	2.1
Missing	17	3.9

TABLE 3

Terminal or Microcomputer Location

Location	Distribution	
	Frequency	Percentage
Counseling Center	122	27.9
Combined Career Planning and Placement Center	121	27.6
Career Center	113	25.8
Guidance Office	84	19.2
Other	58	13.2
Library	23	5.3
Placement Center	23	5.3
Learning Skills Center	14	3.2
Residence Hall	6	1.4

Note: Due to the multiple response format of this item, percentages may not total 100%.

TABLE 4

Referral Sources

Source	Distribution	
	Frequency	Percentage
Individual counseling	411	93.8
Walk-in basis	358	81.7
Career course	276	63.0
Group counseling	212	48.4
Other	172	39.3

Note: Due to the multiple response format of this item, percentages may not total 100%.

TABLE 5

Informational Resources Available

Resource	Distribution	
	Frequency	Percentage
Books, pamphlets, files, etc.	424	96.8
Tests/inventories	398	90.9
Work experience programs	238	54.3
On-the-job interviews	210	47.9
Internships	198	45.2
Audio tapes	197	45.0
Filmstrips	187	42.7
Video tapes	174	39.7
Other	66	15.1
Computer-assisted		
GIS	34	7.8
COIN	15	3.4
CIS	12	2.7
CHOICES	7	1.6
CVIS	1	.2

Note: Due to multiple response format of this item, percentages may not total 100%.

TABLE 6

Computer Applications Available

Computer Application	Distribution	
	Frequency	Percentage
Computer-assisted instruction system	69	15.8
Other	61	13.9
Computer-assisted testing system	45	10.3
Computer-assisted career library indexing system	37	8.4
Computer-assisted personal counseling system	29	6.6

Note: Due to multiple response format of this item, percentages may not total 100%.

TABLE 7

Method of Counselor Intervention Used

Counselor Intervention	Distribution	
	Frequency	Percentage
Individual counseling	416	95.0
Classroom	175	40.0
Group counseling	160	36.5
Other	20	4.5

Note: Due to the multiple response format of this item, percentages may not total 100%.

TABLE 8

Type of Staff Providing Assistance

Group	Distribution	
	Frequency	Percentage
Professionally trained counselors (masters & doctoral level)	414	94.5
Paraprofessionals	162	37.0
Faculty members	71	16.2
Other	44	10.0

Note: Due to the multiple response format of this item, percentages may not total 100%.

TABLE 9

Point at which Counselor Intervention is Provided

When Intervention is Provided	Distribution	
	Frequency	Percentage
Prior to system use	385	87.9
After the client has completed the system	384	87.7
Between sessions at the computer	267	61.0

Note: Due to the multiple response format of this item, percentages may not total 100%.

Table 10

Availability of Staff Members

Availability	Distribution	
	Frequency	Percentage
Not available	5	1.1
Available some of the time	31	7.1
Available most of the time	120	27.4
Available all of the time	275	62.8
No response	7	1.6

TABLE 11

Availability of Support Materials

Support Material	Distribution	
	Frequency	Percentage
List of occupations	367	83.8
General user guide	357	81.5
Supplemental exercises	85	19.4
Other	54	12.3
Video tape presentation	28	6.4
Slide/tape presentation	20	4.6
Audio tape presentation	16	3.7
No support materials available	6	1.4

Note: Due to the multiple response format of this item, percentages may not total 100%.

TABLE 12

Evaluation Strategies

Strategy	Distribution	
	Frequency	Percentage
Number of clients served	341	77.9
Client satisfaction with system	328	74.9
Client knowledge of career decision making	131	29.9
Client knowledge of self	120	27.4
Client knowledge of occupations	113	25.8
No evaluation data is being (or has been) collected	62	14.2
Other	57	13.0

Note: Due to the multiple response format of this item, percentages may not total 100%.

TABLE 13

System Implementation

Method	Distribution	
	Frequency	Percentage
Formal plan with identified steps and time frames	169	38.6
Planning completed on an ad hoc basis as resources became available	203	46.3
No planning method used	51	11.6
No response	15	3.4

TABLE 14

Source of Training During System Implementation

Source	Distribution	
	Frequency	Percentage
In-house trainers	236	53.9
No staff training was available	111	25.3
System developers (ACT or ETS)	102	23.3
Outside trainers	71	16.2

Note: Due to the multiple response format of this item, percentages may not total 100%.

TABLE 15

Potential Needs

Need	Distribution	
	Frequency	Percentage
Specific strategies for using DISCOVER and SIGI with returning adult clients	268	61.2
Identification of instruments appropriate for evaluation studies	244	55.7
In-service training for counselors and other staff members	218	49.8
Networking with other institutional sites	200	45.7
Other	122	27.9

Note: Due to the multiple response format of this item, percentages may not total 100%.

APPENDICES

APPENDIX A

ACT and ETS Form Letters

ACT

DISCOVER Center

May 18, 1984

TO: DISCOVER Sites

FROM: JoAnn Bowlsbey, Assistant Vice President
and Director, DISCOVER Center

RE: Enclosed material from Florida State University

Florida State University has been funded, under a grant from the W. K. Kellogg Foundation, to perform some very valuable functions in relation to computer-based guidance systems. These include 1) the collection and dissemination of the literature and support materials of computer-based guidance, and 2) the comparative study of the DISCOVER and SIGI systems.

ACT is happy to cooperate with and support these functions; for that reason, we are transmitting this material from Florida State to you and asking you to give a little of your time to completion of the questionnaire. Please return it to me in the enclosed envelope by May 30.

I will do two things with the information you return on the questionnaire: 1) use it as valued input to our constant improvement and development of products, and 2) forward it on to Florida State.

Thank you for your time and cooperation...and very best wishes for a pleasant summer!

Schilling Plaza South
230 Schilling Circle
Hunt Valley, Maryland 21031
(301) 824-8000

84

SYSTEM OF INTERACTIVE
GUIDANCE AND INFORMATION

Educational Testing Service
Princeton, New Jersey 08541
(609) 734-5165

Dear Colleague:

I want to encourage you to take a few minutes to complete the enclosed questionnaire. Although this questionnaire does not come from the SIGI Office, I believe its results will be of great benefit to SIGI, to you, and to prospective users. The Clearinghouse that sponsors the questionnaire is a part of project LEARN, a large-scale educational project sponsored by the W.K. Kellogg Foundation. Through project LEARN, the Kellogg Foundation is also sponsoring the development of a new version of SIGI specifically for adults. It is an ambitious and worthy project.

I know that you recently received a questionnaire directly from SIGI. The response rate to that questionnaire was simply fantastic. I appreciate the time that you spent with that questionnaire and hope that you will spend a few minutes with this one. Thank you in advance for your cooperation.

Sincerely,

Ray Potter

Ray Potter
SIGI Program Manager

RP:cs

APPENDIX B

Investigator Letter

M E M O R A N D U M

TO: Coordinators/Managers of DISCOVER Systems

FROM: James P. Sampson and Robert C. Reardon

SUBJECT: Survey of Institutions Using DISCOVER and SIGI

DATE: April 17, 1984

The W.K. Kellog Foundation has provided funds to establish a Clearinghouse for Computer-Assisted Guidance Systems at Florida State University. The Clearinghouse is designed to provide information to assist institutions in: (1) selecting a computer-assisted guidance system; and (2) implementing and evaluating SIGI and DISCOVER systems. Particular attention will be given to the use of these systems with the adult learner. Information will be disseminated to institutions in the form of document abstracts categorized as follows: (1) research and evaluation studies; (2) program descriptions; and (3) supporting materials, e.g., manuals, handbooks, and user exercises. In addition to the abstracts, bibliographies on DISCOVER, SIGI, and general issues will be available.

A national survey of how SIGI and DISCOVER are currently being used at various institutions is now under way. As a present user of DISCOVER, we need your help in collecting data on how your system is being used at your institution. Please help us in this effort by completing the enclosed survey and returning it, in the self-addressed, stamped envelope, to:

Dr. JoAnn Bowlsbey
DISCOVER/ACT Center
230 Schilling Circle
Hunt Valley, MD 21031

Please do not indicate your name or institutional affiliation on the survey. It is our intention that survey responses be kept confidential.

If you would like to receive Clearinghouse abstracts or bibliographies, at no charge, please complete the enclosed flyer and mail to the address indicated on the form. The results of the survey will be available next Fall and may be obtained from the Clearinghouse here at Florida State University.

This research is made possible with funds provided by the W.K. Kellogg Foundation to Project LEARN, South Coastal Region. These funds were made available to improve educational services for adult learners.

JPS/RCR/zn/W-199

Enclosures

M E M O R A N D U M

TO: Coordinators/Managers of SIGI Systems

FROM: James P. Sampson and Robert C. Reardon

SUBJECT: Survey of Institutions Using DISCOVER and SIGI

DATE: April 17, 1984

The W.K. Kellog Foundation has provided funds to establish a Clearinghouse for Computer-Assisted Guidance Systems at Florida State University. The Clearinghouse is designed to provide information to assist institutions in: 1) selecting a computer-assisted guidance system; and 2) implementing and evaluating SIGI and DISCOVER systems. Particular attention will be given to the use of these systems with the adult learner. Information will be disseminated to institutions in the form of document abstracts categorized as follows: 1) research and evaluation studies; 2) program descriptions, and 3) supporting materials, e.g., manuals, handbooks, and user exercises. In addition to the abstracts, bibliographies on DISCOVER, SIGI, and general issues will be available.

A national survey of how SIGI and DISCOVER are currently being used at various institutions is now under way. As a present user of SIGI, we need your help in collecting data on how your system is being used at your institution. Please help us in this effort by completing the enclosed survey and returning it, in the self-addressed, stamped envelope, to:

Dr. James P. Sampson
215 Stone Building
Florida State University
Tallahassee, FL 32306

Please do not indicate your name or insitutional affiliation on the survey. It is our intention that survey responses be kept confidential.

If you would like to receive Clearinghouse abstracts or bibliographies, at no charge, please complete the enclosed flyer and mail to the address indicated on the form. Please mail the flyer separate from the survey to ensure the confidentiality of your responses. The results of the survey will be available next Fall and may be obtained from the Clearinghouse here at Florida State University.

This research is made possible with funds provided by the W.K. Kellogg Foundation to Project LEARN, South Coastal Region. These funds were made available to improve educational services for adult learners.

JPS/RCR/zn/W-199

Enclosures

APPENDIX C

Order Form

REQUEST FOR CLEARINGHOUSE MATERIALS

The Clearinghouse for Computer-Assisted Guidance Systems was established to provide current and readily accessable information relevant to selecting, implementing, and evaluating comuter-assisted guidance systems. Abstracts from documents relating to the DISCOVER system and the System of Interactive Guidance and Information (SIGI) may be obtained from the Clearinghouse. A general bibliography is also available on: (1) SIGI; (2) DISCOVER and (3) issues related to the use of computer-assisted guidance. Please indicate your request for materials by returning the form below to:

Clearinghouse for Computer-Assisted Guidance Systems
c/o James P. Sampson, Ph.D.
Dept. of Human Services and Studies
215 Stone Building
The Florida State University
Tallahassee, Florida 32306

Published with funds provided by the W. K. Kellogg Foundation to Project LEARN, South Coastal Region. These funds were made available to improve educational services for adult learners.

NAME _____

TITLE_____

INSTITUTION_____

STREET_____

CITY/STATE/ZIP_____
(City) (State) (Zip)

Check the type of information you are requesting below:

NAME OF SYSTEM
_____DISCOVER
_____SIGI
_____Both

TYPE OF ABSTRACT
_____Research and evaluation
_____Program descriptions
_____Supporting materials
_____All types

TYPE OF BIBLIOGRAPHY
_____SIGI
_____DISCOVER
_____Issues
_____All Types

APPENDIX D

Survey Instrument

Survey of Institutions Using DISCOVER and SIGI

Clearinghouse for Computer-Assisted Guidance Systems
Project LEARN - Phase II
Florida State University

Directions:

Please choose the most appropriate response and place the number in the space or spaces along the right margin.

System(s) Currently in Use

1. Indicate the system or systems (up to two responses) that you currently use ____ ____

   (1) DISCOVER (on a mainframe computer)
   (2) DISCOVER (on a microcomputer or a minicomputer)
   (3) SIGI (on a mainframe or a minicomputer)
   (4) SIGI (on a microcomputer)

Institutional Characteristics

2. Type of Institution? ____

   (1) high school
   (2) vocational/technical school
   (3) community college
   (4) four-year college
   (5) university
   (6) other _____

3. How many full-time or part-time students are enrolled at your institution?

   (1) fewer than 1,000
   (2) 1,000 to 4,999
   (3) 5,000 to 9,999
   (4) 10,000 to 14,999
   (5) 15,000 to 19,999
   (6) 20,000 to 24,999
   (7) 25,000 to 29,999
   (8) 30,000 to 34,999
   (9) over 35,000

4. Estimate the percentage of adult students over the age of 25 who are attending your institution ____%

5. Estimate the percentage of your DISCOVER or SIGI users who are adult students over the age of 25. ____%

System Configuration

6. How many computer terminals or microcomputers are available on your campus for students to use DISCOVER or SIGI? ____

7. What is the location of DISCOVER or SIGI computer terminals or microcomputers on your campus? (up to three responses) ____ ____ ____

   (1) guidance office
   (2) counseling center
   (3) career center
   (4) placement center
   (5) combined career planning and placement
   (6) library
   (7) residence hall
   (8) learning skills center
   (9) other _____

Integration with Other Services

8. How are students referred to DISCOVER or SIGI? ___ ___ ___

(1) individual counseling (2) group counseling ___ ___
(3) career course (4) walk-in basis
(5) other _____

9. Which other informational resources are available to students at your institution who use DISCOVER or SIGI?

(1) books, pamphlets, files, etc. (2) audio tapes ___ ___
(3) filmstrips (4) video tapes ___ ___
(5) on-the-job interviews (6) internships ___ ___
(7) tests/inventories (8) work experience programs ___ ___
(9) other _____ ___

10. Is your system used as a component of the following programs?

academic advisement (1) yes (2) no ___
admissions recruitment programs (1) yes (2) no ___
retention programs (1) yes (2) no ___

11. Which other computer applications are available in your office/center? (do not include word processing)

computer-assisted career library indexing system (1) yes (2) no ___
computer-assisted testing system (1) yes (2) no ___
computer-assisted personal counseling system (1) yes (2) no ___
computer-assisted instruction system (1) yes (2) no ___
other _____ (1) yes (2) no ___

12. Which computer-assisted career information systems are available for student use at your institution in addition to SIGI or DISCOVER?

CVIS (1) yes (2) no ___
CIS (1) yes (2) no ___
GIS (1) yes (2) no ___
CHOICES (1) yes (2) no ___
COIN (1) yes (2) no ___
Other _____ (1) yes (2) no ___

Counselor and Staff Intervention

13. If counselor intervention is provided to assist students in obtaining maximum benefit from using DISCOVER or SIGI, what method is used to deliver the intervention?
(enter 0 if no counselor intervention is provided). ___ ___ ___

(1) individual counseling (2) group counseling ___
(3) classroom (4) other _____

14. If counselor intervention is provided, what type of staff members provide the intervention? (enter 0 if no counselor intervention ____ ____ ____ ____

(1) professionally trained counselors (masters & doctoral level)
(2) faculty members
(3) paraprofessionals
(4) other _____

15. If counselor intervention is provided, at what point during the student's use of your system does the intervention take place? (enter 0 if no counselor intervention is provided). ____ ____ ____

(1) prior to system use
(2) between sessions at the computer
(3) after the student has completed the system

16. Indicate the availability of a staff member (clerical support, paraprofessional, faculty member or counselor, in or near the room where the computer terminal is located) to readily answer student questions and deal with problems, while the student is using your system: ____

(1) not available
(2) available some of the time
(3) available most of the time
(4) available all of the time

17. Which of the following support materials are available to students who use your system? ____ ____ ____

(1) general user guide
(2) list of occupations
(3) audio tape presentation
(4) slide/tape presentation
(5) video tape presentation
(6) supplemental exercises
(7) other _____
(8) no support materials available

<u>Usage Statistics for All Users</u>

18. Estimate the total number of different persons who used DISCOVER or SIGI in the 1982-83 school year ___

19. Estimate the average total time (per student) spent using DISCOVER or SIGI ____(hrs.)

20. Estimate the average time length of a student appointment ____(hrs.)

21. Estimate the average number of appointments per student ____

22. Estimate the average amount of time that elapses between making an appointment and beginning to use your system ____(days)

<u>System Management</u>

23. Indicate the <u>title</u> of the individual at your institution who has direct responsibility for managing your system: _____

24. How long have you been using the following systems?

DISCOVER	____(yrs.)	____(mos.)
SIGI	____(yrs.)	____(mos.)

25. How many days per week is your system available for student use? ____(days)

26. How many hours per day (on the average - Monday through Friday) is your system available for student use? ____(hrs.)

27. Which of the following strategies are you using (or have you used) to evaluate the impact of your system on the students you serve?

____ ____ ____ ____ ____ ____

(1) number of students served
(2) student satisfaction with the system
(3) student knowledge of self
(4) student knowledge of occupations
(5) student knowledge of career decision making
(6) other _____
(7) no evaluation data is being (or has been) collected

Implementation of Your System

28. Which of the following planning methods were used in implementing your system? ____

(1) formal plan with identified steps and time frames
(2) planning completed on an ad-hoc basis as resources become available
(3) no planning method used

29. Indicate who provided staff training during the implementation of your system. ____ ____ ____

(1) in-house trainers
(2) outside trainers
(3) system developers (ACT or ETS)
(4) no staff training was available

Potential Needs

30. Indicate what might be done to improve the quality of your computer-assisted career guidance program. ____ ____ ____ ____

(1) identification of instruments appropriate for evaluation studies ____ ____ ____ ____
(2) inservice training for counselors and other staff members
(3) networking with other institutional sites
(4) specific strategies for using DISCOVER and SIGI with returning adult students
(5) other _____
(6) other _____
(7) other _____
(8) other _____